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10/531,369	04/14/2005	Hiroaki Ichikawa	112857-566	6510

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EXAMINER	
NGUYEN, KIMNHUNG T	
ART UNIT	**PAPER NUMBER**
2629	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,369	ICHIKAWA, HIROAKI	
	Examiner	Art Unit	
	KIMNHUNG NGUYEN	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-15,18 and 19* is/are rejected.

7)☒ Claim(s) *16,17 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This application has been examined. The claims 11-20 are pending. The examination results are as following.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 11, 14, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wei et al. (US 2003/0137485, hereinafter referred to as Wei) in view of Chang et al. (US 6,914,389, hereinafter referred to as Chang).

Regarding claim 11, Wei teaches a liquid crystal display apparatus having a liquid crystal interposed between two substrates ([0024]) and a backlight as a light source for the liquid crystal ([0021]), comprising:

a luminance sensor formed on one of the substrates (this substrate is referred to as the first substrate), the luminance sensor and thin film devices as pixels being formed on the first substrate in the same process ([0025]).

However, Wei fails to explicitly teach the further limitations of present claim 1. Chang, however, teaches a light module for LCDs that includes a control circuit that generates a drive signal that keeps the luminance of the backlight almost constant on the basis of a detection signal detected by the luminance sensor (Col. 2, lines 15-28), and that the luminance sensor detects the

luminance of the backlight (Col. 2, lines 15-17). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Wei and Chang for the benefit of achieving uniform illumination of the back light (Chang, Col. 2, lines 27-28).

Regarding claim 14, Wei as amended by Chang teaches the liquid crystal display apparatus as set forth in claim 11, wherein the substrate on which the thin film devices are formed when viewed from the liquid crystal side is disposed on the backlight side (Wei [0024], second substrate 64), at least one luminance sensor being disposed in a screen on which the pixels are formed (Chang Fig. 9, items 54A and 54B),

a light shield portion being disposed on the other substrate (this substrate is referred to as the second substrate) so that the light shield portion is opposite to the luminance sensor ([0024], final sentence).

Regarding claim 15, Wei as amended by Chang teaches the liquid crystal display apparatus as set forth in claim 11, wherein the second substrate opposite to the first substrate on which the thin film devices are formed is disposed on the backlight side when viewed from the liquid crystal (Wei [0024], second substrate 64), at least one luminance sensor being disposed outside a screen on which the pixels of the thin film devices are formed (Wei Fig 5, item 34), and

wherein the liquid crystal display apparatus further comprises:

a housing that houses the first substrate, the second substrate, the backlight, and the control circuit and that covers the luminance sensor (Chang Fig. 1, item 14).

Regarding claim 19, the method as claimed is viewed as inherent to the operation of the device as claimed in claim 11, and is concurrently rejected.

4. Claims 12, 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wei in view of Chang, and further in view of Paolini et al. (US 6,791,636, hereinafter referred to as Paolini).

Regarding claim 12, Wei as amended by Chang teaches the liquid crystal display apparatus as set forth in claim 11. However, the combined teaching fails to teach the claim limitations of present claim 12.

However, Paolini teaches an LCD backlight, wherein the backlight includes a light emitting device array (Col. 1, lines 27-29) and a diffusion portion (Col. 1, lines 47-50), the light emitting device array being an arrangement of repetition of at least three color light emitting devices, the diffusing portion that diffuses color rays emitted from the light emitting device array and generates white light (Col. 1, lines 27-30). Therefore, it would have been obvious to one of ordinary skill in the art to combine the LCD with constant backlighting of Wei as amended by Chang with the backlight system of Paolini for the obvious benefit of delivering high quality white light to the SLM.

Regarding claim 13, Wei as amended by Chang teaches he liquid crystal display apparatus as set forth in claim 1, but fails to teach the limitations of claim 3.

Paolini, however, teaches the use of a backlight system wherein the backlight includes a light emitting device array (Col. 1, lines 27-29), a diffusion portion (Col. 1, lines 47-50), and a light guide portion, the light emitting device array that is an arrangement of repetition of at least three color light emitting devices in a line shape (Col. 1, lines 27-29 and claim 1, see "at least one"), the diffusion portion that diffuses color rays emitted from the light emitting device array and generates white light (Col. 1, lines 47-50), the light guide portion that equally guides the

color rays emitted from the light emitting device array to the entire surface of the diffusion portion (Fig 4, items 48, 49 and Col. 6, lines 27-30).

Regarding claim 18, Wei as amended by Chang teaches the liquid crystal display apparatus as set forth in claim 11, but fails to teach the limitations of claim 18.

However, Paolini teaches color filters corresponding to at least three color light emitting devices are disposed on one of the two substrates (Col. 3, lines 18-34), wherein the luminance sensors are disposed corresponding to the light emitting devices and detect the luminance of each of the colors (Col. 5, lines 19-26 and 32-38), and wherein the control circuit generates drive signals for the light emitting devices corresponding to the luminance of each of the colors (Col. 5, lines 23-26).

Allowable Subject Matter

5. Claims 16, 17 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: None of the cited art teaches or suggests that wherein the luminance sensor detects an output voltage based on an off current associated with a thin film device of the luminance sensor due to light excitation corresponding to luminance of light emitted from the backlight, and an input signal generation portion that generates an input signal having a repetitive period that is shorter than a period for which the liquid crystal transmits light without recognition of flickering, the input signal generation portion supplying the input signal to the thin film device; a sample hold portion that holds a detection signal of the luminance sensor; and a control circuit that generates

a drive signal to maintain the luminance of the backlight almost constant based on a signal held by the sample hold portion as claim 16; or generating an input signal having a repetitive period that is shorter than a period for which the liquid crystal transmits light without recognition of flickering and supplying the input signal to the thin film device that composes the luminance sensor; sample-holding the detected signal of the luminance sensor based on the input signal; generating a drive signal based on the signal detected during sample holding; and driving at least three-color light emitting devices with the drive signal generated to maintain the luminance of the backlight almost constant as claim 20.

Response To Arguments

7. Applicant's arguments filed 8/5/08 have been fully considered but they are not persuasive.

Applicant argues that "In the Office Action, claims 11, 14, 15 and 19 are rejected under §103(a) as being unpatentable over U.S. 2003/0137485 *("Wei")* in view of U.S. Patent 6,914,389 *("Chang")*. Independent claim 11 requires a liquid crystal display apparatus with a liquid crystal interposed between a first and second substrate and a backlight as a light source, the apparatus comprising a luminance sensor and a thin film device as pixels being formed on the first substrate in a same process, and a control circuit. The luminance sensor detects the luminance of the backlight. The control circuit generates a drive signal to maintain that luminance of the backlight almost constant based on a detection signal provided by the luminance sensor. In response to the rejection, Applicant respectfully traverses because the references are not properly combinable and, even if combinable the references do not teach or suggest the alleged combination.

Wei describes a thin film transistor (TFT) liquid crystal display that can adjust its light source in response to ambient light levels. The TFT 34 is a luminance detector that detects an ambient light source and helps to modulate the LCD light source. TFT 34 is connected to a light source adjusting circuit 30 and a feedback circuit 36, shown as a block diagram in Figure 2 and as a circuit diagram in Figure 3. When ambient light enters a first substrate layer 62, it interacts with the amorphous silicon layer 60 of the photo sensor TFT 34, generating a current to the feedback circuit 36, which modulates the light source to optimal brightness levels. In response to an increase in ambient light, TFT 34 would send a signal to the light source adjusting circuit 30 which will enhance, weaken, open or close the light source of the device. Again, note that *Wei* does not describe the detection of LCD light source".

"Chang, in comparison, teaches a direct-type backlight module with a plurality photo sensors that adjusts the relative intensity of the plurality of lamps that make up the backlight. *Chang* has photo sensors 28A to 28D, and light sources 20A to 20 D, and the comparative and arithmetic unit 50. Each photo sensor A through D is aligned respectively with each light source A through D such that a measurement of the intensity of each light source by its respective each

photo sensor can be compared in 50. 50 then adjusts the relative intensity the lamps 20A to 20D in order to prevent an uneven luminous intensity of the light on the display panel".

"First, the two references are not properly combinable. Neither of the two possible TFTs described in *Wei,* neither 82 nor 34, is easily combinable with the photo sensor in *Chang.* Combining *Chang's* photo sensor with TFT 34 is problematic. 34 senses ambient light and controls the backlight based on ambient light. *Chang's* photo sensor senses the backlight only.

"Also, 34 is positioned on the periphery of the device. [0025] In contrast each photo sensor in *Chang* must be positioned relative to the light source it measures. That position can be vertically through the device, and can be positioned to detect average illuminations between light sources. See Figs. 3-4, and 6-9; also Col. 3 ln. 62 to col. 4, in 30. Positioning the photo sensors in *Chang* at the periphery as taught by *Wei* is not taught by *Chang* and would lead to poor determination of light source intensities. TFT 82 in *Wei* is also not combinable with *Chang.* TFT 82 controls each pixel 80 of substrate 64 and is part of the pixel array matrix 78. *Wei* teaches that TFT 82 is part of the active region I of substrate 64. That TFT is responsible for driving the liquid crystal display not for measuring backlight intensity".

"Even if combination of *Chang* and *Wei* is proper, the combination of these two references fails to teach the claimed invention. First, the claimed invention and the two disclosures each contain a different controller. The claimed invention requires a control circuit to generate a drive signal to maintain the luminance of the backlight almost constant. A review of the specification makes clear that this focuses on maintaining a set luminance. At [0011], "a control circuit that ... keeps the luminance of the backlight almost constant on the basis of a detection signal detected by the luminance sensor" indicates that maintaining a constant luminance is the goal. In addition, an advantage of the claimed invention is to "keep the luminance of the backlight constant even if aged deterioration takes place in the apparatus. [0018]. In contrast, neither *Wei* nor *Chang* attempts to maintain the luminance of the backlight. *Chang's* stated goal is to "prevent uneven luminous intensity of the light" by adjusting each light source based on measurements from each light source's respective photo sensor. Col. 2 ln. 3-6; col. 4 ln. 32-42. In other words, each independent light source is varied one against the other to create an even

luminance, not to maintain the luminance. The name of the controller in *Chang,* "comparative and additive unit" further supports that disclosure, as this unit compares the relative intensities in each light source as measured by its photo sensor, and adjusts them appropriately. See col. 4 in. 15-20. Similarly, *Wei* uses the photo sensor to determine whether to enhance, weaken, open or close the light source. [0013] That adjustment could be in response to an increased brightness in the room, requiring more backlighting to the viewing screen, or a deceased ambient light in the room, leading to a reduction in backlighting. Neither of these focuses on maintaining a backlight intensity almost constant, as required by the claims".

Examiner respectively disagrees because Wei teaches a liquid crystal display apparatus having a liquid crystal interposed between first and second substrate ([0024]) and a backlight as a light source for the liquid crystal ([0021]), comprising: a luminance sensor formed on the first substrate, the luminance sensor and thin film devices as pixels being formed on the first substrate in the same process ([0025]). However, Wei fails to explicitly teach the further limitations of present claim 1. Chang, however, teaches a light module for LCDs that includes a control circuit that generates a drive signal that keeps the luminance of the backlight almost constant on the basis of a detection signal detected by the luminance sensor (Col. 2, lines 15-28), and that the luminance sensor detects the luminance of the backlight (Col. 2, lines 15-17). Therefore, the combination of Wei and Chang are satisfied for their intended purpose. Clearly, Chang does teach the maintaining a backlight intensity almost constant as claimed invention such as, "to achieve an uniform illumination of both the first and second lamp of the backlight" (see Chang col. 2, lines 27-28, and col. 2, lines 36-40), because the term uniform illumination of the

backlight as the same as backlight intensity almost constant. For these reasons, the rejections are maintained.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMNHUNG NGUYEN whose telephone number is (571)272-7698. The examiner can normally be reached on MON-FRI, FROM 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kimnhung Nguyen/
Examiner, Art Unit 2629

/Richard Hjerpe/
Supervisory Patent Examiner, Art Unit 2629

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/531,369	ICHIKAWA, HIROAKI	
	Examiner	Art Unit	
	KIMNHUNG NGUYEN	2629	